

ABSTRACT OF THE DISCLOSURE

A heat transfer apparatus includes a heat source having a heat source maximum operating temperature; and a heat sink comprising a closed chamber having a chamber first end wall, a chamber second 5 end wall and a circumferential chamber side wall interconnecting said chamber first end wall and said chamber second end wall, said walls defining a chamber interior space, at least one of said chamber first end wall and said chamber second end wall being a heat transfer wall, a heat transfer material retained within said 10 chamber, and at least one impeller having an axis of impeller rotation and an impeller radius mounted within said chamber adjacent to said heat source to rotate about the axis of impeller rotation for moving the heat transfer material over said heat transfer wall and propelling said heat transfer material to a 15 location thermally remote from said heat source for heat dissipation, wherein said chamber interior space extends perpendicular to the axis of impeller rotation a radial thermal spacing distance of at least two times the impeller radius.